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The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

Paper No. 23

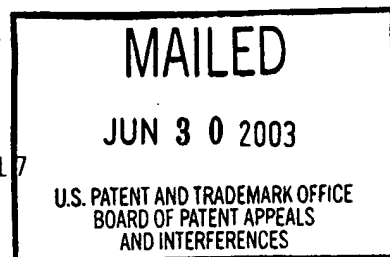
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte SCOTT L. BAKER

Appeal No. 2002-1662  
Application No. 09/061,017

ON BRIEF



Before KRASS, JERRY SMITH, and BARRY, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-19.

The invention is directed to a method and apparatus for interleaving a data stream and is best described by reference to representative independent claim 1, reproduced as follows:

1. A method of interleaving a data stream comprising:  
writing a sequence of groupings of bits from the data

Appeal No. 2002-1662  
Application No. 09/061,017

stream, the groupings having a predetermined size, from a data bus into a memory;

applying selected groupings read from the memory to a first multiplexer (MUX);

applying the groupings applied to the first MUX to a second MUX; and

applying at least one grouping to the second MUX between applying groupings from the first MUX to the second MUX.

The examiner relies on the following references:

Afify et al. (Afify)	5,291,485	Mar. 1, 1994
Dobbins et al. (Dobbins)	5,825,772	Oct. 20, 1998
		(filed Apr. 2, 1996)

Claims 1-19 stand rejected under 35 U.S.C. 103. As evidence of obviousness, the examiner offers Afify with regard to claims 1-3, 6-9 and 11-19, adding Dobbins with regard to claims 4, 5 and 10.

Reference is made to the briefs<sup>1</sup> and answer<sup>2</sup> for the respective positions of appellant and the examiner.

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<sup>1</sup>Appeal brief of February 2, 2000 (Paper No. 11), reply brief of May 24, 2000 (Paper No. 13), supplemental appeal brief of May 8, 2001 (Paper No. 16) and reply brief of August 20, 2001 (Paper No. 18).

<sup>2</sup>Examiner's answer of June 14, 2001 (Paper No. 17).

Appeal No. 2002-1662  
Application No. 09/061,017

OPINION

In rejecting claims under 35 U.S.C. 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teachings, suggestions or implications in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444

Appeal No. 2002-1662  
Application No. 09/061,017

(Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). Only those arguments actually made by appellant have been considered in this decision. Arguments which appellant could have made but chose not to make in the brief have not been considered and are deemed to be waived [see 37 CFR 1.192 (a)].

With regard to independent claims 1, 12 and 18, the examiner relies on Figures 9-10, and column 8, lines 21-58, of Afify for a teaching of alternating reading and multiplexing data from two different memories, combining sources and alternating multiplexing header/address information between a data stream (column 7, lines 54-56, of Afify). The examiner points to column 9, lines 39-60, column 11, lines 41-45 and column 12, lines 1-16, of Afify for a teaching of interleaving. Afify's microprocessor 114 is identified by the examiner as the claimed "state machine."

Appeal No. 2002-1662  
Application No. 09/061,017

Appellant argues that Afify is directed to nonanalogous art and, accordingly, is not properly applied under 35 U.S.C. 103.

The test for analogous art outside an inventor's field of endeavor is whether the art pertains to the particular problem confronting the inventor. In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992).

Appellant argues that the transformation of virtual tributaries in a synchronous optical network, as in Afify is not analogous to a method for interleaving a data stream, as recited in instant claim 1. Moreover, appellant asserts, Afify is not reasonably pertinent to the subject matter of claim 1 because the artisan would not look to a patent in the art of transformation of virtual tributaries to address the problem of interleaving a data stream.

We disagree.

Independent claim 1 calls merely for a method of interleaving a data stream. Independent claim 12 calls for an integrated circuit comprising a memory, multiplexers and a state machine. Independent claim 18 calls for a system having a computer including the integrated circuit of claim 12. These

claims are not specific to any particular environment. Since Afify does describe the interleaving of data<sup>3</sup> received on a bus and does describe a memory, multiplexers and what the examiner regards as a state machine (microprocessor 114), it would appear to us that Afify is both within appellant's field of endeavor, as broadly set forth in the claims, and is at least reasonably pertinent to the claimed subject, even if the data being interleaved by Afify may possibly differ from the type of data envisioned by appellant. Accordingly, it is our view that Afify is analogous art.

That having been said, even though Afify may represent analogous art, the question remains as to whether the examiner has established a prima facie case of obviousness over Afify, regarding the instant claimed subject matter.

Figure 9 of Afify, along with the attendant description, makes it clear that Afify teaches the writing of a sequence of groupings of bits from 10-bit and 16-bit input data streams on bus 65. These groupings have a predetermined size and are written from data bus 65 into a memory having an upper portion 100 and a lower portion 102. The examiner maintains that these

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<sup>3</sup>Also see the interleaving of read/write cycles at column 9, lines 39-40, and column 12, lines 14-15 of Afify.

groupings are applied to a first MUX but it is not clear whether the examiner considers this first MUX to be elements 110/126 of Afify or element 104 of Afify [see answer-page 4]. The examiner urges that element 132 in Figure 9 of Afify is the claimed second MUX. Since the data from element 104 in Afify is fed to element 132, it does appear that groupings that are applied to the first MUX 104 are applied to the second MUX 132, as claimed. With regard to the claimed, "applying at least one grouping to the second MUX between applying groupings from the first MUX to the second MUX," the examiner's position is that this is taught by Afify at column 8, lines 21-58, especially lines 48-58, and column 11, lines 40-46, since some grouping from somewhere is applied to element 132 and this is done between applying groupings from element 104 to element 132 because Afify teaches alternating read operations at the cited portions.

It is the examiner's position that Afify fails to particularly call for the terminology, "groupings," as employed in instant claims 1, 12 and 18, and fails to disclose the memory as a FIFO buffer as in instant claims 2, 14 and 16. However, the examiner contends that "groupings" reads on bytes, octets, digital words, frames, headers, addresses, etc. so that it would have been obvious for Afify to use "groupings" or to specify that

Appeal No. 2002-1662  
Application No. 09/061,017

combinations of 12 bits, as at column 8, lines 55-58, are "groupings" because "the term groupings is a more broad term and allows more flexibility" [answer-page 5]. With regard to FIFOs, the examiner takes Official notice that such memories were well known and commonly used in the environment claimed.

Appellant argues that Afify may employ multiplexing but Afify does not perform or even relate to interleaving. We disagree. Clearly, Afify relates to "interleaving" because it teaches that the read and write cycles may be interleaved, e.g., column 9, lines 40-41. But, more importantly, and to the point, the output 60 from multiplexer 132 in Figure 9 of Afify is clearly made up of data which has been "interleaved," the original data being input on bus 65. From the two sets of data on bus 65, i.e., the 16-bit SBI DATA IN and the 10-bit SBI ADDR IN, a 16-bit output results on line 60. Thus, as broadly claimed, one may reasonably contend that the signal output at 60 is a result of "interleaving" the input data. Now, it may be that this is not the type of interleaving intended by the instant invention but appellant does not explain why the interleaving of Afify is different from the interleaving of the instant claimed subject matter. Instead, appellant maintains that Afify does not



teach interleaving at all. Accordingly, appellant's argument in this regard is not persuasive.

Appellant argues that Afify does not apply selected groupings read from a memory to a first multiplexer. First, appellant questions whether the reformatter 104 of Afify is even a multiplexer but this seems clear from Afify's description, at column 8, line 56, wherein the element is described as "reformatter MUX 104." Appellant, while not very clear on the rationale, concludes that "selected groupings" are not read from memory in Afify but, instead, "all the contents of the memorie(s) are provided" [quoted without underlining and bold type as at page 5 of the reply brief of August 20, 2001]. On its face, appellant's argument is not convincing of unobviousness because when "all" the contents of a memory are provided, "all contents" may also be considered a "selected grouping." A universal set may be one of its own subsets. While this may be an unfair comparison because the instant claims call for a "sequence of groupings" and therefore, there must be more than one group, when reading each claim as a whole, it is still our view that the examiner's finding that Afify applies selected groupings read from memory to a first multiplexer is reasonable. Since the first multiplexer in Afify is considered to be element 104 and

Appeal No. 2002-1662  
Application No. 09/061,017

this element receives selected bits from the upper (100) and lower (102) memories, it appears reasonable to us that Afify provides a teaching of applying selected groupings read from memory to a first multiplexer.

Appellant also argues that Afify does not apply at least one grouping to a second MUX between applying groupings from the first MUX to the second MUX [appeal brief of February 2, 2000- page 7]. However, rather than expound on this argument, to show how/why Afify does not teach this claimed feature, appellant merely continues the nonanalogous art argument, which we have found not persuasive. Appellant's lack of a specific showing as to why Afify is not considered to teach this claimed feature is especially unpersuasive in view of the examiner's rather detailed rationale at page 10 of the answer, in the full paragraph in the middle of the page. Basically, the examiner is pointing out the rather broad scope of the claim in showing that the grouping applied to the second MUX between applying groupings from the first MUX to the second MUX may come from anywhere. That is, between applying groupings from MUX 104 to MUX 132 in Afify, element 126 also provides data, or groupings, on line 130 to MUX 132.

With regard to FIFOs recited in dependent claims, appellant does not deny that these elements are well known, but appellant does contend, without any supporting rationale, that it would not have been obvious to use a FIFO to implement the claimed invention. To merely contradict the examiner without a cogent rationale why it would not have been obvious to employ an admittedly well-known type of memory in constructing the claimed subject matter is not persuasive of nonobviousness. Similarly, appellant's statements regarding the term "burst" [reply brief of August 20, 2001-page 7], is not found persuasive because the examiner takes Official notice of such term, along with an explanation, at page 7 of the answer<sup>4</sup>, as to how and why it would have been obvious to use "bursts" of data in Afify, and appellant merely contends, at page 7 of the reply brief of August 20, 2001, that the term "burst" is not intended to have the meaning imparted to it by the examiner. Appellant refers to the specification's discussion of "burst DRAM" but the instant claim language only refers to "bursts of data signals." In our view, the examiner has made a reasonable case for the obviousness of receiving "bursts of data signals" on the input lines of Afify

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<sup>4</sup>The examiner refers to claim "5" at this portion of the answer when he probably meant claim "7" since claim 5 does not use the term "bursts."

Appeal No. 2002-1662  
Application No. 09/061,017

and writing those "bursts of data signals" into memory. Accordingly, appellant's terse statement that the examiner's interpretation of the claimed term is not the one intended, is not persuasive of nonobviousness.

While there may, in fact, be arguments that could be persuasive of nonobviousness of the instant claimed subject matter, appellant has not made them. Accordingly, any such arguments have been waived. In light of an apparently reasonable analysis by the examiner as to how Afify is applied against the claimed subject matter and appellant's failure to convince us of error in the examiner's reasoning, we will sustain the rejection of claims 1-3, 6-9 and 11-19 under 35 U.S.C. 103.

As to claims 4, 5 and 10, the examiner admitted that Afify is silent as to VLAN tags, but turned to Dobbins for a teaching of VLAN tags, contending that it would have been obvious to artisans viewing these references as a whole to modify the networking system of Afify "to further include VLANs, and the associated tags/ID because VLANs are more secure networks than regular Ethernet LANs are" [answer-page 8].

Appellant contests this combination because the SONEts of Afify are a point-to-point protocol, employing a contiguous data stream format, i.e., a virtual tributary, communicated over a

single path, in contrast to Dobbins' packet switched network in which the protocol is distributed and a non-contiguous data stream is employed which may be distributed over a plurality of paths [reply brief of May 24, 2000-page 5]. Therefore, concludes appellant, the artisan would never seek to combine these teachings.

While appellant may raise a reasonable point that, appellant offers no support for these conclusions as to the differing types of data stream formats of Afify and Dobbins. In light of the examiner's explanation, at pages 12-13 of the answer, as to why one would consider implementing VLAN tags, which we consider reasonable and incorporate herein by reference, and the unpersuasiveness of appellant's unsupported arguments regarding the data stream formats of the references, we will sustain the rejection of claims 4 and 5 under 35 U.S.C. 103.

With regard to claim 10, this claim depends from claim 1 and does not include any bits representing a VLAN tag. On the contrary, claim 10 specifically excludes VLAN tags by requiring selection of groupings that represent signal information "other than a virtual local area network (VLAN) tag." Accordingly, we do not see how this claim distinguishes over the rationale applied for sustaining the rejection of claim 1 supra, and we


Appeal No. 2002-1662  
Application No. 09/061,017

will also sustain the rejection of claim 10.

We have sustained the rejections of claims 1-19 under 35 U.S.C. 103. Accordingly, the examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

  
ERROL A. KRASS  
Administrative Patent Judge

*Gerry Smith*  
JERRY SMITH  
Administrative Patent Judge

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~~LANCE LEONARD BARRY~~  
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Appeal No. 2002-1662  
Application No. 09/061,017

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